**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-2. (Cancelled)

3. (Currently Amended) The method of claim 10 wherein said correlating said alarm data comprises using user-defined correlation rules to find said ~~a~~ root causes ~~of a fault in said network~~.

4. (Currently Amended) The method of claim 10 wherein said new diagnostic knowledge comprises a new correlation rule.

5. (Currently Amended) The method of claim 10 wherein said new diagnostic knowledge comprises at least one of a root cause, an alarm definition, and a corrective action.

6. (Currently Amended) The method of claim 10 wherein said alarm data comprises alarm data generated by network elements in said communication network.

7. (Cancelled)

8. (Currently Amended) The method of claim 10 wherein said diagnostic knowledge ~~correlating alarm data~~ comprises ~~correlating said alarm data using~~ local topology configuration information ~~stored locally at said first network node~~.

9. (Currently Amended) The method of claim 10 wherein said diagnostic knowledge ~~correlating alarm data~~ comprises ~~correlating said alarm data using a local knowledge base at said first network node, said local knowledge base including~~ alarm definitions and correlation rules.

10. (Currently Amended) A method for diagnosing faults in a communication network using distributed alarm correlation, said method comprising:

receiving alarm data locally at network nodes in said communication network;

correlating said alarm data locally at each of said network nodes using an associated node-level alarm correlation tool and diagnostic knowledge stored in an associated node-level knowledge base to produce correlation results identifying a root cause of a fault determined at each of said network nodes;

reporting said correlation results produced locally at said network nodes to respective users at respective said network nodes;

adding new diagnostic knowledge provided by at least one of said users to ~~a local~~ one of said node-level knowledge bases ~~at a respective at least one of said network nodes~~, said new diagnostic knowledge being obtained by said at least one of said users using said correlation results associated with at least one of said network nodes;

replicating said new diagnostic knowledge to at least one other node-level knowledge base associated with at least one other said network nodes; and

reporting said new diagnostic knowledge and said correlation results produced locally at said network nodes to a higher-level alarm correlator; and ~~correlation tool.~~

correlating said root causes determined at said network nodes using said higher-level alarm correlator to find a higher-level root cause.

11. (Currently Amended) The method of claim 10 further comprising:
~~reporting said diagnostic knowledge to other said network nodes; and~~
adding said diagnostic knowledge to a node knowledge base at said other said network nodes.

12. (Currently Amended) The method of claim 10 further comprising:

~~receiving said correlation results at said higher-level alarm correlation tool, said correlation results including root causes of faults determined by local alarm correlation at said network nodes;~~

~~correlating said root causes determined at said network nodes to find a higher-level root cause at said higher-level alarm correlation tool;~~

reporting said higher-level root cause to a user of said higher-level alarm correlator ~~correlation tool~~; and

adding higher-level diagnostic knowledge provided by said user at said higher-level alarm correlator ~~correlation tool~~ to a higher-level knowledge base in said higher-level alarm correlator ~~correlation tool~~.

13. (Original) The method of claim 10 further comprising receiving and storing local topology configuration information at respective said network nodes.

14. (Currently Amended) A distributed alarm correlation system for diagnosing faults in a communication network, said distributed alarm correlation system comprising:

a plurality of node-level alarm correlation tools located at nodes in said communication network, wherein each of said node-level alarm correlation tools is configured to provide node-level alarm correlation to produce node-level correlation results identifying a root cause of a fault determined at an associated one of said nodes and to share new diagnostic knowledge produced by a user of said node-level alarm correlation tool using said node-level correlation results with other of said node-level alarm correlation tools at other nodes; and

at least one higher-level management level alarm correlation tool located at a network management center in said communication network, wherein each of said node-level alarm correlation tools is configured to shares said new diagnostic knowledge and said node-level correlation results with said higher-level management level alarm correlation tool, and wherein said higher-level management level alarm correlation tool is configured to provides higher-level alarm correlation to produce higher-level correlation results identifying a higher-level root cause.

15. (Original) The distributed alarm correlation system of claim 14 wherein each of said node-level alarm correlation tools comprises alarm definitions defining alarm groups categorizing alarms generated in said communication network.

16. (Cancelled).

17. (Currently Amended) The distributed alarm correlation system of claim 16~~4~~wherein each of said node-level alarm correlation tools comprises local topology configuration information.

18. (Original) The distributed alarm correlation system of claim 14 wherein each of said node-level alarm correlation tools includes a local knowledge base.

19. (Original) The distributed alarm correlation system of claim 14 wherein each said higher-level alarm correlation tool includes a higher-level knowledge base.

20. (Original) The distributed alarm correlation system of claim 14 wherein each of said node-level alarm correlation tools includes an alarm correlator for correlating network element alarm data with locally stored topology configuration information using user-defined correlation rules.

21-24. (Cancelled).

25. (Currently Amended) A machine-readable medium storing an executable set of software instructions that are executable by a computer system to cause the ~~whose contents cause a~~ computer system to perform a method of fault diagnosis in a communication network said method comprising:

receiving alarm data locally at network nodes in said communication network;

correlating said alarm data locally at each of said network nodes using an associated node-level alarm correlation tool and diagnostic knowledge stored in an associated node-level knowledge base to produce correlation results identifying a root cause of a fault determined at each of said network nodes;

reporting said correlation results produced locally at said network nodes to respective users at respective said network nodes;

adding new diagnostic knowledge provided by at least one of said users to ~~a local~~ one of said node-level knowledge bases ~~at a respective at least one of said network nodes~~, said new diagnostic knowledge being obtained by said at least one of said users using said correlation results associated with at least one of said network nodes;

replicating said new diagnostic knowledge to at least one other node-level knowledge base associated with at least one other said network nodes; and

reporting said new diagnostic knowledge and said correlation results produced locally at said network nodes to a higher-level alarm correlator; and ~~correlation tool.~~

correlating said root causes determined at said network nodes using said higher-level alarm correlator to find a higher-level root cause.

26. (Cancelled)

27. (New) The machine-readable medium of claim 25, wherein said method further comprises:

reporting said higher-level root cause to a user of said higher-level alarm correlator; and

adding higher-level diagnostic knowledge provided by said user at said higher-level alarm correlator to a higher-level knowledge base in said higher-level alarm correlator.